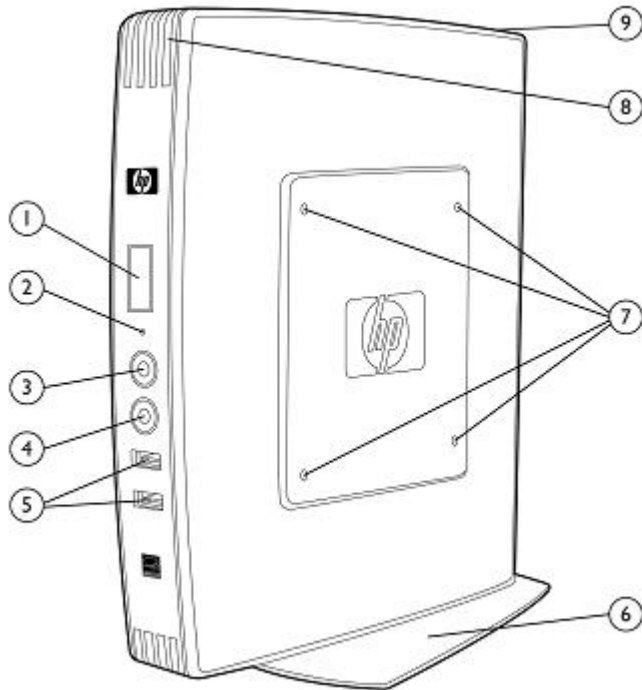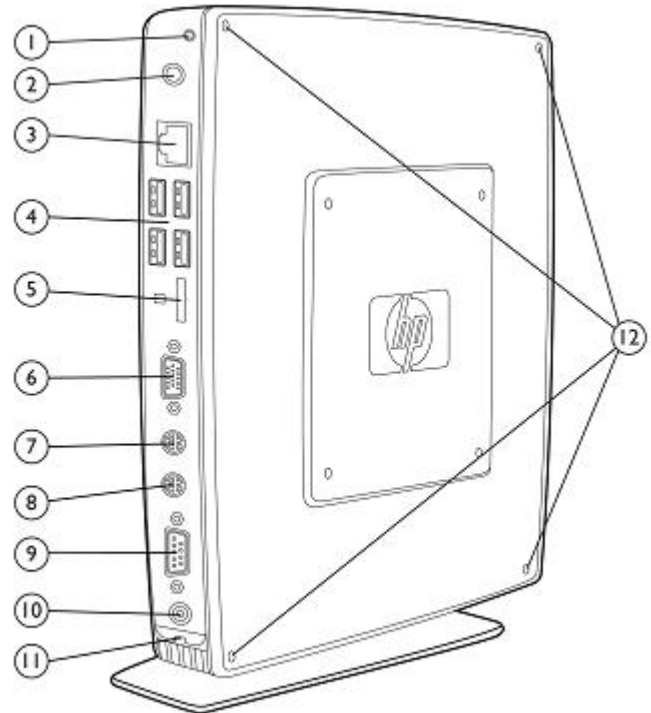# QuickSpecs

Overview

Front

1. Power button (with integrated power indicator light)
2. Flash drive activity indicator light
3. Audio connector (headphone/speaker out)
4. Audio connector (mic in)
5. USB connectors (two)
6. Removable stand for vertical orientation
7. Mounting points for HP Quick Release or other VESA mount
8. Secure USB compartment cover
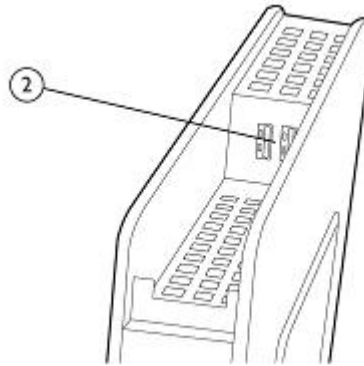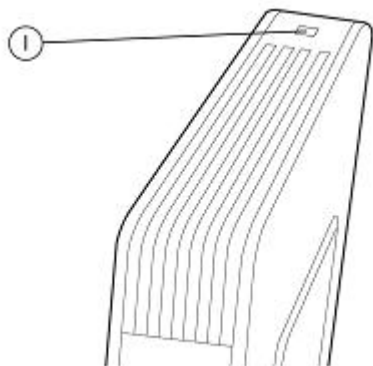9. Cable lock slot (secures unit and secure USB compartment)

Back

1. Cabling exit from secure USB compartment
2. Wi-Fi antenna connector (depends on model)
3. Ethernet RJ-45 connector
4. USB connectors (four)
5. DisplayPort-ready monitor connector*
6. VGA monitor connector
7. PS-2 keyboard connector
8. PS-2 mouse connector
9. Serial connector
10. +19V DC power input
11. Power cable retention slot
12. Mounting location for four (4) horizontal mounting feet

* Connector may be used only with optional DVI-D adapter to connect DVI-D-capable monitor. DisplayPort monitors are not supported in this release. Future versions may support other functions.
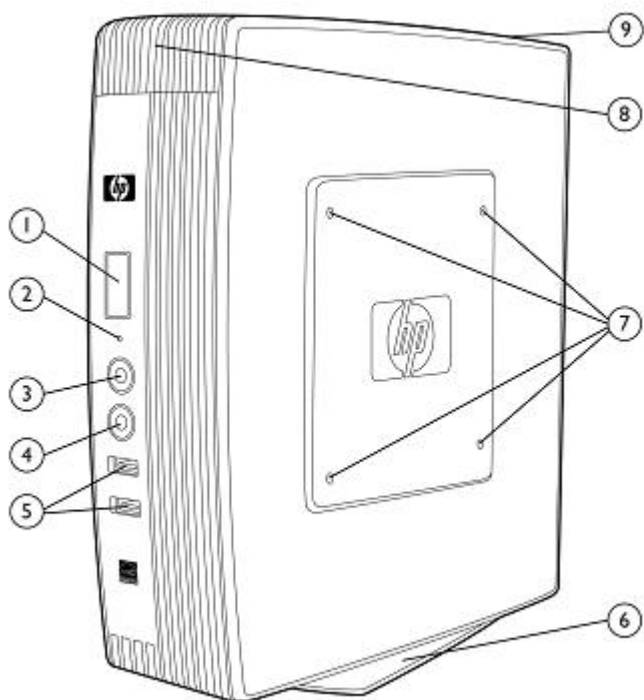
Overview

Top

1. Cable lock slot - secures unit and secure USB compartment
2. Secure USB compartment with cover removed - 2 USB connectors

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with optional Expansion Module Kit

Front	Back
1. Power button (with integrated power indicator light)	1. Cabling exit from secure USB compartment
2. Flash drive activity indicator light	2. Wi-Fi antenna connection (depends on model)
3. Audio connector (headphone/speaker out)	3. Ethernet RJ-45 connector
4. Audio connector (mic in)	4. USB connectors (four)
5. USB connectors (two)	5. DisplayPort monitor connector
6. Removable stand for vertical orientation	6. VGA monitor connector
7. Mounting points for HP Quick Release or other VESA mount	7. PS/2 keyboard connector

Overview

8. Secure USB compartment - 2 USB connectors
9. Cable lock slot (secures unit and secure USB compartment)

8. PS/2 mouse connector
9. Serial connector
10. +19V DC power input
11. Power cable retention slot
12. Mounting location for four (4) horizontal mounting feet
13. Second serial connector
14. PCI/PCIe slot access
15. Parallel connector

* Connector may be used only with optional DVI-D adapter to connect DVI-D-capable monitor. DisplayPort monitors are not supported in this release. Future versions may support other functions.
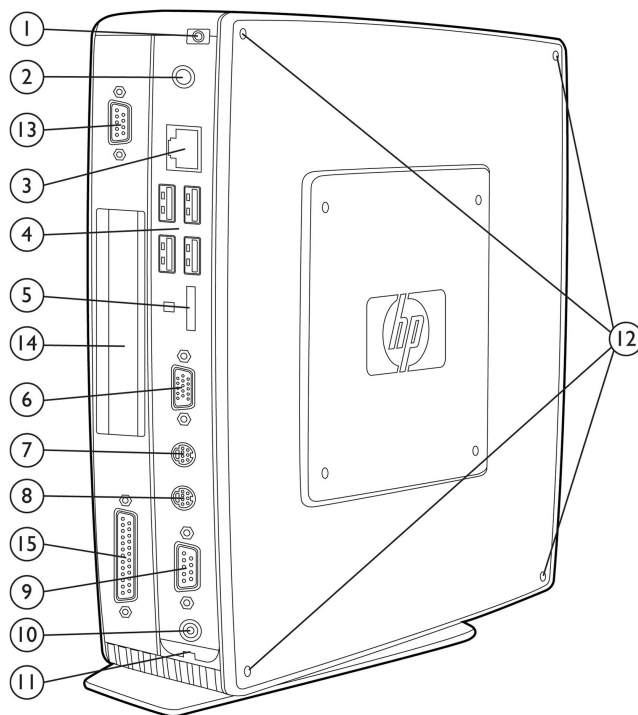
At A Glance

Hardware features:

- Intel Atom N28* processor, with Intel GL40 chipset *Intel's numbering is not a measurement of higher performance.
- 1or 2 GB flash memory provides ample storage for drivers and applications
- 1 or 2 GB DDR3/667MHz system memory (64 MB minimum reserved for graphics memory)
- Available empty DDR3 SO-DIMM slot (and RAM upgrade options) for dual-channel system memory expansion
- 8 USB 2.0 ports
- Secure USB compartment is ideal for protecting USB wireless and USB Flash
- Legacy support includes parallel (via Expansion Module), serial, and PS/2 connections
- Dual monitor support options (VGA plus DVI-D through optional adapter)
- Optional Expansion Module with PCI-E X4 or PCI slot for installing a wide range of devices (includes a parallel and second serial port)
- Additional SATA II connector for adding optional secondary solid state Flash drive (16 GB available)

Software features:

- HP ThinPro operating system supports modular software updates that can be applied remotely over the network with less bandwidth overhead. This type of update also improves HP's ability to deliver time to market updates.
- HP ThinPro operating system includes an administrative setup and deployment wizard to simplify configuration, automate software rollouts, and reduce the need for documentation.
- Native HP RDP Enhancements provide streaming media and USB redirection through RDP connections
- Native Citrix HDX MediaStream and Plug-and-Play software components provide streaming media and USB redirection through ICA connections
- HP Remote Graphics Software (RGS) support for a business class multimedia experience
- VDI broker support includes VMware View Manager, Citrix XenDesktop (with CDA mode utility), LeoStream, Provision Networks, HP Session Allocation Manager (SAM)
- Enterprise class HP Device Manager, lets you remotely manage devices from a central location.
- Exclusive HP ThinState Tools offers in-box, easy-to-use image deployment and recovery tools.
- HP Client Automation for quick and easy deployment of images and thin client management. For more details visit: http://www.hp.com.

Warranty:

- Protected by Hewlett-Packard Services, including a limited three-year mail-in warranty (certain restrictions and exclusions apply)

QuickSpecs

Standard Features - Models

VU903AA	Processor/Chipset	Intel Atom N280* 1.66 GHz/GL40 chipset
		*Intel's numbering is not a measurement of higher performance.
	Operating System	HP ThinPro
	Flash Memory	1 GB
	Memory	1 GB DDR-3 SODIMM
		NOTE: 64 MB minimum reserved for graphics memory.
	Graphics	Intel GL40 graphics
	Browser	Iceweasel
	Client Management Software	HP Device Manager Agent 4.0
		HP ThinState for image capture and redeploy
		HP Client Automation agent
	Keyboard	USB or PS/2 (varies by region)
	Mouse	USB or PS/2 (varies by region)

VU908AA	Processor/Chipset	Intel Atom N280* 1.66 GHz/GL40 chipset
		*Intel's numbering is not a measurement of higher performance.
	Operating System	HP ThinPro
	Flash Memory	2 GB
	Memory	2 GB DDR-3 SODIMM
		NOTE: 64 MB minimum reserved for graphics memory.
	Graphics	Intel GL40 graphics
	Browser	Iceweasel
	Client Management Software	HP Device Manager Agent 4.0
		HP ThinState for image capture and redeploy
		HP Client Automation agent
	Keyboard	USB or PS/2 (varies by region)
	Mouse	USB or PS/2 (varies by region)

QuickSpecs

Options

Category	Item	Part Number
Accessories	NOTE: Optional accessories are available as separate purchase.	
	HP t5740/t5745 Expansion Module	TBD
	HP Quick Release Kit	EM870AA
	HP Integrated Work Center Stand	GN783AA
	HP/Kensington Cable Lock	PC766A
	65 Watt External Power Supply replacement	TBD
Communications	HP Neoware US/AP USB Wireless Adapter[3] (US only; not certified for use in Latin America or Canada) (Asia/Pacific: Taiwan, Australia, Malaysia, Singapore, Indonesia, Philippines) Security: WEP except 256-bit, WPA and WPA2 only	AK256AA
	HP Neoware EMEA USB Wireless Adapter[3] (EMEA; not certified for use in Russia or Belarus) Security: WEP except 256-bit, WPA and WPA2 only	AK257AA
	Cisco Aironet 802.11a/b/g Wireless PCI Adapter[4]	AIR-PI21AG-A-K9
	Allied Telesis PCIe x1 Fast Ethernet Fiber Network Interface Card[4]	AT-2711FX
	Allied Telesis PCI-e x1 Gigabit Fiber Network Interface Card[4]	AT-2972SX
Input Devices	HP PS/2 Standard Keyboard	DT527A
	HP USB Standard Keyboard	DT528A
	HP USB Smartcard Keyboard	ED707AA
	HP PS/2 2-Button Optical Mouse	EY703AA
	HP USB 2-Button Optical Scroll Mouse	DC172B
Monitors[5]	HP L5009tm Touchscreen Monitor	TBD
	ELO Touch 1529L Flat Panel - USB/serial combo[4,6]	E926109
Graphics	HP DisplayPort to DVI-D Adapter	FH973AA FH973AT
Storage	HP 16GB SATA II IDE Solid State Flash Drive (for secondary storage)[7]	TBD
	HP USB External CD/DVD R/RW Drive (read only support)	FS943AA FS934UT
	Apacer 4GB AH522 USB 2.0 Flash Drive[2]	91.HDE2S.HP00C
Memory	1GB DDR3 SO-DIMM Memory Upgrade Kit (1 x 1 GB)	TBD
	2GB DDR3 SO-DIMM memory Upgrade Kit (1 x 2 GB)	TBD
Security	HP USB Smartcard Keyboard	ED707AA
	SCM USB Smart Card Reader SCR331[4]	904054
	HP/Kensington Cable Lock	PC766A

Options

Care Pack Services[8]	9x5 Next-Business-Day Advanced Exchange - 3 Years	331653-001; U4847E[9]
	9x5 Next-Business-Day On-Site Coverage - 3 Years	331655-001; U4849E[9]
	Hardware Installation	331686-001; U4865E

[3]Wireless functionality is not supported for roaming environments. Thin client must be stationary for wireless device to properly function. A standard WLAN (Wi-Fi) infrastructure with wireless access points is required and is not included.

[4]Option, drivers, and support are available directly from third party.

[5]Drivers must be installed. For a complete list of monitors compatible with HP thin clients, it is important to cross-reference the supported video resolutions of the HP thin client to the supported resolutions of the monitor. Most HP monitors have one or more supported resolutions that match HP thin client products.

[6]Only serial is supported.

[7]The secondary storage drive is not supported for the primary boot image of the thin client. HP Remote Management tools may be used to manage content on the secondary storage drive, but cannot be used to image or install the primary boot image from this drive.

[8]Service levels and response times for HP Care Pack Services may vary depending on your geographic location. Restrictions and limitations apply. For details, visit: www.hp.com/go/carepack.

[9]4U4847E is available in all regions; U4849E is available in Americas and Asia-Pacific/Japan.

Technical Specifications

Memory Configurations

Flash Memory	Memory Slot 1 (DDR-3)	Memory Slot 2 (DDR-3)
1 GB	1 GB	Empty
2 GB	2 GB	Empty

Processor	Intel Atom N280 1.66 GHz	
Memory	Flash Memory	Up to 4 GB (for boot drive)
	System Memory	1 GB DDR-3 SODIMM in standard configurations (up to 8 GB supported)
		NOTE: 64 MB minimum reserved for graphics memory (Intel GL40 chipset dynamically allocates graphics memory)
Graphics	Intel GL40 graphics with support for two high-resolution monitors up to 2048 x 1536, or up to 32 bit color depth*	

Mode	Color depth	Refresh rate
640 x 480	8/16/32bit	60, 72, 75, 85
800 x 600	8/16/32bit	60, 75, 85
1024 x 768	8/16/32bit	60, 70, 75, 85
1280 x 720	8/16/32bit	60, 75, 85
1280 x 768	8/16/32bit	60, 75, 85
1280 x 1024	8/16/32bit	60, 75, 85
1400 x 1050	8/16/32bit	60, 75, 85
1440 x 900	8/16/32bit	60, 75, 85
1600 x 1200	8/16/32bit	60, 75 ,85
1680 x 1050	8/16/32bit	60
1920 x 1080	8/16/32bit	60, 75, 85
1920 x 1200	8/16/32bit	60, 75
2048 x 1536	8/16/32bit	60

* This table represents a sample of possible modes that this controller is capable of displaying but various factors such as the capability and EDID info returned by the attached monitor, the interface used (D-SUB/DisplayPort or optional DVI-D/D-SUB with dongle), and dual monitor mode may limit the availability of modes, color depth, and or refresh rate.

Input/Output/ Peripheral Support	Keyboard	USB or PS/2 (varies by region)
	Mouse	USB or PS/2 (varies by region)
	Printer	Local and/or network printers (RDP, ICA, LPD)
	Video	Intel GL40 graphics
Audio	Output	Internal amplified speaker, 1/8-inch mini, full 16-bit stereo, 44-kHz sample rate.
	Input	1/8-inch mini microphone
Hardware Security	Security lock slot (cable lock sold separately) Secure USB compartment with 2 USB 2.0 ports	
Networking	10/100/1000 Gigabit Ethernet (RJ-45)	
	TCP/IP with DNS and DHCP	

Technical Specifications

	Point-to-Point Protocol (PPP), Direct Connection through RS-232, Point-to-Point over Ethernet (PPPoE), Point-to-Point Tunneling Protocol (PPTP), Layer-2 Tunneling Protocol (L2TP), Wake on LAN (WOL), PXE
	Server Network Time Protocol (SNTP)
	Simple Network Management Protocol (SNMP)
I/O ports and connectors	Eight USB 2.0 ports (two in front, four in rear, two in secure USB compartment), 1 VGA, 1 DisplayPort-ready* , 2 PS/2, 1 serial, 1 RJ-45, and 1 optional Expansion Module with X4 PCI-EI or PCI slot, also including 1 parallel and second serial port
	*The DisplayPort-ready connector may be used only with optional DVI-D adapter to connect DVI-D-capable monitor. DisplayPort monitors are not supported in this release. Future versions may support other functions.
Server OS Compatibility/ Support	Citrix XenApp 4.5 and 5.0 Citrix XenDesktop 2.x and 3 Citrix Presentation Server 4.0 Windows Server 2008 Terminal Services Windows 2000/2003 Server families, Windows 2000/2003 Server Terminal Services VMware View Manager 2.x and 3.1

Software Included		
	Operating System/ Protocols/Components	HP ThinPro Citrix ICA 11 with XenDesktop/PNagent Citrix Desktop Appliance (CDA) mode utility RDesktop 1.6 XDM / X.11 Sun Java Iceweasel Web browser with ePDFview (PDF viewer) HP TeemTalk Terminal Emulator 7.1 Debian Package Manager with simple GUI IPV6 Capable HP Screensaver
	Session Allocation Managers/Session Brokers	HP Session Allocation Manager (SAM) 2.3 VMware View Manager 3.1 agent vWorkspace broker support Leostream agent
	Multimedia and USBR solutions	HP Remote Graphics Software Receiver 5.2 for VMware View and Microsoft Terminal Services HP RDP Multimedia and USB Redirection software enhancements for VMware View and Windows Terminal Server Citrix HD-X MediaStream support for XenApp and XenDesktop Citrix HD-X USB Plug-n-Play support for XenApp and XenDesktop
	Management	HP Device Manager agent HP Client Automation agent HP ThinState for image capture and restore HP ezUpdate for automated FTP profile, add-on and image updates Altiris Deployment Solution (must purchase license directly from vendor)
	Other add-on software available (see: www.hp.com/support for latest list of available add-ons)	

Languages (MUI)	English, French, German, Spanish, Dutch, Norwegian, Korean, Simplified Chinese, Traditional Chinese, and Japanese	
Dimensions HxWxD (approximate)	Without stand	10.04 x 1.73 x 8.74 in (255 x 44 x 222 mm)
	With stand	10.39 x 1.73 x 8.74 in (266.7 x 44 x 222 mm)
	With Expansion Module	10.04 x 2.91 x 8.74 in (255 x 74 x 222 mm)

Technical Specifications

Weight (approximate)	With stand	3.48 lb (1.58 kg)
	With Expansion Module	4.14 lb (1.88 kg)
Environmental	Temperature range	Operating: 50° to 104° F (10° to 40° C)
		Operating, using Quick Release with a flat panel monitor: 50° to 95° F (10° to 35° C) Operating, using PCI Expansion Unit: 50° to 104° F (10° to 40° C)
		Non-operating:-22° to 140° F (-30° to 60° C)
		NOTE: Specifications are at sea level with altitude derating of 1° C/300m (1.8° F/1000ft) to a maximum of 3 Km (10,000 ft), with no direct, sustained sunlight. Upper limit may be limited by the type and number of options installed.
	Humidity	20% to 80% condensing 10% to 90% non-condensing
	Power	Worldwide auto-sensing 100-240 VAC, 50-60 Hz energy-saving automatic power-down, surge-tolerant, ENERGY STAR® 2.0 qualified 65-watt power supply.
	Power consumption[10]	Average power consumption in idle mode is from 11.4 to 12.3 W.

[10]The actual power consumption at your location could vary and is dependent on many factors including but not limited to software load on the thin client, attached peripherals, and environmental factors.

Regulatory Compliance	Ergonomics	German ZH1/618; EN29241-3, approved
	Safety	UL 1950, CSA 950; TÜV-GS (EN60 950) approved
	RF Interference	FCC Class B; CE Mark; EN55022B; VCCI
Warranty	Three-year limited hardware warranty.	
	NOTE: Certain restrictions apply. Consult the HP Customer Support Center for details.	

Emulations	Emulation	Terminal ID
	ADDS A2	
	AIXTerm	
	ANSI BBS	
	AT 386	
	ATT4410	
	DG 410/412	
	HP 700-92/96	70092, 70094, 70096, 2392A, 2622A
	HZ1500	
	IBM3151	Mod11, Mod31
	IBM3270	3278-2 (24x80), 3278-3 (32x80), 3278-4 (43x80), 3278-5 (27x132), 3278-2-E (24x80), 3278-3-E (32x80), 3278-4-E (43x80), 3278-5-E (27x132), 3279-2 (24x80), 3279-3 (32x80), 3279-4 (43x80), 3279-5 (27x132), 3287-1
	IBM5250	5291-1, 5292-2, 5251-11, 3179-2, 3196-A1, 3180-2, 3477-FC (27x132), 3477-FG (24x80), 3486-BA, 3487-HA, 3487-HC, 3812-1
	SCO Console	
	Stratus V102	
	TA6530	
	TVI910	

Technical Specifications

TVI920	
TVI925	
TVI950	
TVI955	
VT52, VT100, VT100+, VT500 (7- or 8-bit)	VT100, VT101, VT102, VT125, VT131, VT132, M2200, VT220, VT240, VT320, VT340, VT420, VT510, VT520, VT525
VT HP220, VT UTF8	VT100, VT101, VT102, VT125, VT220, VT240, VT320, VT340, VT420, VT131, VT132, M2200, VT510, VT520, VT525
VT PCTerm	
Wyse PCTerm	
WY50	
WY50+	
Y60	

Technical Specifications – Environmental Data

Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

- US Energy Star
- IT ECO declaration
- EPEAT Silver where HP registers commercial desktop products. See http://www.epeat.net for registration status in your countrys

Ultra-Slim Desktop

System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Ultra-slim Desktop model is based on a typically configured product

Energy Consumption	115 VAC	230 VAC	100 VAC
Normal Operation	12.1 W	12.2 W	12.1 W
Sleep (Energy Star low power mode)	NA	NA	NA
Off	0.43 W	0.52 W	0.41 W

Heat Dissipation*	115 VAC	230 VAC	100 VAC
Normal Operation	41 BTU/hr	42 BTU/hr	41 BTU/hr
Sleep	NA	NA	NA
Off	1 BTU/hr	2 BTU/hr	1 BTU/hr

* Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

System Fan Off	Sound Power (LWAd, bels)	Sound Pressure (LpAm, decibels)
Idle	NA	NA
Fixed Disk (random writes)	NA	NA

Batteries

This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:

- Mercury greater the 5ppm by weight
- Cadmium greater than 10ppm by weight

Battery size: CR2032 (coin cell)
Battery type: Lithium Ion

Additional Information

- This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2002/95/EC.
- This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive - 2002/96/EC.
- This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).
- This product is in compliance with the IEEE 1680 (EPEAT) standard at the Silver where HP registers

Technical Specifications – Environmental Data

commercial desktop products. See http://www.epeat.net for registration status in your country.

- Plastics parts weighing over 25 grams used in the product are marked per ISO 11469 and ISO1043.
- This product contains 0% post consumer recycled plastic (by wt.)
- This product is 95% recyclable when properly disposed of at end of life.

Packaging Materials

- External:
  - Corrugated Carton 780.1g
  - Carboard & Misc 162g
  - Paper / Carboard 111.4g
- Internal:
  - Polyethylene low density foam 42 g
- The Corrugated Carton packaging material is made from 90% recycled content.
- The Carboard & Misc packaging material is made from 90% recycled content.
- The Paper / Carboard packaging material is made from 90% recycled content.
- The Polyethylene low density foam packaging material is made from 90% recycled content.

RoHS Compliance	Hewlett-Packard is committed to compliance with all applicable environmental laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) Directive. HP's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis. By July 1, 2006, RoHS substances will be virtually eliminated (virtually = to levels below legal limits) for all HP electronic products subject to the RoHS Directive, except where it is widely recognized that there is no technically feasible alternative (as indicated by an exemption under the EU RoHS Directive).
Material Usage	This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at: http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Nickel - finishes must not be used on the external surface designed to be frequently handled or carried by the user.
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

Technical Specifications – Environmental Data

Packaging

HP follows these guidelines to decrease the environmental impact of product packaging:

- Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.
- Eliminate the use of ozone-depleting substances (ODS) in packaging materials.
- Design packaging materials for ease of disassembly.
- Maximize the use of post-consumer recycled content materials in packaging materials.
- Use readily recyclable packaging materials such as paper and corrugated materials.
- Reduce size and weight of packages to improve transportation fuel efficiency.
- Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: http://www.hp.com/go/reuse-recycle or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/recyclers. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Hewlett-Packard Corporate Environmental Information

For more information about HP's commitment to the environment:
Global Citizenship Report
http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html
Eco-label certifications
http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html
ISO 14001 certificates:
http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html